

REMARKS

Reconsideration and withdrawal of the objections to and rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 25-47 are pending. Claims 25-31, 33-39, 41 and 46 are amended, without prejudice.

No new matter is added by these amendments.

It is submitted that these claims are patentably distinct from the prior art cited by the Examiner, and that these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments and remarks herein are not made for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather the amendments and remarks are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Support for the amended recitations in the claims is found throughout the specification.

II. OBJECTIONS TO THE CLAIMS

Claims 26-39 were objected to for alleged informalities. The amendments to the claims render the rejection moot.

Consequently, reconsideration and withdrawal of the objection to the claims are respectfully requested.

III. 35 U.S.C. §112, SECOND PARAGRAPH, REJECTIONS

Claims 25-47 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. The amendments to the claims, without prejudice, render the rejection moot.

Turing to the allegation that the terms “oligonucleotides” and “polynucleotides” are unclear, Applicants assert that these are art-recognized terms. “Oligonucleotides” and “polynucleotides” refer to short nucleotide stretches of nucleotides and longer stretches of nucleotides, respectively. As support, the Examiner is directed to, for example, <http://www.hyperdictionary.com/dictionary/Oligonucleotide>, wherein the term “oligonucleotide” can mean a DNA polymer composed of a few nucleotides; or a “molecule usually composed of 25 or fewer nucleotides.” Likewise, the term “polynucleotide” is defined by the same site as “a DNA polymer composed of multiple nucleotides.” A skilled artisan is cognizant of the meaning of these terms.

Consequently, reconsideration and withdrawal of the Section 112, second paragraph, rejections are respectfully requested.

IV. 35 U.S.C. §103 REJECTIONS

Claims 25-31 and 33-47 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Pompe et al. (AR) in view of U.S. Patent No. 5,560,960 to Singh et al. and Richter et al. (AQ); and claim 32 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Pompe et al. (AR) in view of Singh et al. and Richter et al. (AQ) and further in view of U.S. Patent No. 5,670,680 to Newman et al. Applicants disagree. None of the cited documents teach, enable, suggest or motivate a skilled artisan to practice the Applicants' invention.

One of the major differences of the method according to the present invention compared to Pompe et al, Singh et al, Richter et al., and, further, Newsman et al., is the initial direct and selective binding of metal complexes to the nucleic acid, which are initially very small, but nevertheless are capable of being controllably enlarged. None of the above documents describes

or proposes such a strategy in order to produce metalated nucleic acids.

Pompe et al. describe a distinguishable method, since the present invention binds the metal complex to DNA before reducing it.

Turning to Richter et al, the initially grown palladium antiparticles are substantially wider than DNA itself (between 3-5 nm for double-stranded DNA). The present invention, by contrast, produces platinum nanoparticles on double-stranded DNA that are no wider than the DNA; these particles are catalytic towards electroless deposition of gold and can thereby be enlarged in a controlled manner. Also, in contrast to the procedure of Richter et al., the step of "removing non-conjugated metal complex ..." has an unexpected advantage that smaller (primary) metal-nanoparticle clusters (metal nanoparticle-nucleic acid composite) are generated (as discussed in the instant specification) which, as an important consequence, are more stable in time than those produced with prior art methods.

One reason for the enhanced stability according to the instant invention is the larger surface energy in view of the decreased ratio cluster surface/cluster volume. The sub-nanometer size of the platinum particles in the nanoparticle/DNA composite produced according to the present invention are, therefore, stable in time, at least for weeks or months (page 4, 3rd paragraph of the description). This unexpected result is not present in any of the cited documents. By contrast, the formation of the 3-5 nm clusters in Richter et al, is based on ionic interaction and is distinguishable from Applicants' invention.

It is well-settled, and the Examiner is respectfully reminded, that "obvious to try" is not the standard upon which an obviousness rejection should be based. *See In re Fine*. And as "obvious to try" would be the only standard that would lend the Section 103 rejection any

viability, the rejection must fail as a matter of law. Therefore, applying the law to the instant facts, the rejection is fatally defective and should be removed.

Consequently, reconsideration and withdrawal of the Section 102 and 103 rejections are believed to be in order and such actions are respectfully requested.

V. OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Claims 25-47 were provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-22 and 24-35 of co-pending Application Serial No. 10/210,812 (the “ ‘812 application”) in view of Singh et al. Applicants disagree.

A finding of obviousness-type double patenting turns on whether the invention defined in a claim in the application in issue is an obvious variation of the invention defined in a claim of a prior patent. *See, e.g., In re Berg*, 46 U.S.P.Q.2d, 1226 (Fed. Cir. 1998). In order for an obviousness-type double patenting rejection to stand, the Examiner must show that the claims in this application are obvious **based solely on the claims in the prior patent**; the disclosure in the prior patent can not be used as prior art.

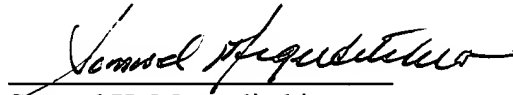
When comparing the claims of the ‘812 application to the claims of the instant application, the Examiner’s provisional double patenting rejection is wrong. For example, nowhere in the claims of the ‘812 application is there a teaching or suggestion of removing non-conjugated metal complexes and/or non-conjugated by-products. Further, nowhere in the claims of the ‘812 application is there a motivation to combine its teachings with that of Singh in order to obtain the instant invention. As the requisite suggestion and motivation are absent from the claims of the ‘812 application, the obviousness-type double patenting rejection must fail as a matter of law.

Consequently, reconsideration and withdrawal of the provisional obviousness-type double patenting rejection are respectfully requested.

CONCLUSION

By this Amendment, claims 24-47 should be allowed; and this application is in condition for allowance. Favorable reconsideration of the application, withdrawal of the rejections and objections, and prompt issuance of the Notice of Allowance are, therefore, all earnestly solicited.

Respectfully submitted,
FROMMER LAWRENCE & HAUG LLP

By: 
Samuel H. Megerditchian
Reg. No. 45,678
Tel: (212) 588-0800
Fax: (212) 588-0500